

(12) ~~INTERNATIONAL APPLICATION PUBLISHED UNDER
THE PATENT COOPERATION TREATY (PCT)~~

(19) ~~World Intellectual Property Organization~~ [WIPO] [Bar Code]
~~International Bureau~~

(43) ~~International Publication Date~~ (10) ~~International Publication Number~~
~~August 11, 2005 (08/11/2005)~~ **PCT** **WO 2005/073083 A1**

(51) ~~International Patent Classification⁷:~~ **B64D 11/06** [DE/DE]; Daimlerstr. 21, Schwäbisch Hall (DE).

(21) ~~International Application No.:~~ **PCT/EP2005/000638**

(22) ~~International Filing Date:~~ January 24, 2005 (01/24/2005)

(25) ~~Language in which the international application was
originally filed:~~ **German**

(26) ~~Language in which the international application is
published:~~ **German**

(30) ~~Priority Data:~~
~~10 2004 004 339.6 January 29, 2004 (01/29/2004) DE~~

(71) ~~Applicant (for all designated states except the US):~~
**RECARO AIRCRAFT SEATING GMBH & CO.
KG**

(72) ~~Inventor; and~~

(75) ~~Inventor/Applicant (US only):~~ **SCHÜRG, Hartmut**
[DE/DE]; Zollhüttengasse 20, 74523 Schwäbisch Hall
(DE). **FORGATSCH, Oliver** [DE/DE]; Flachswie-
senstrasse 16, 71364 Winnenden (DE). **PILGRAM,**
Christian [DE/DE]; Starkholzbach 44, 74523 Schwä-
bisch Hall (DE).

(74) ~~Representative:~~ **BARTELS AND PARTNER**; Lange
Strasse 51, 70174 Stuttgart (DE).

(81) ~~Designated States (unless indicated otherwise, for
each available type of national protective right):~~ AE,
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW,

[continued on next page]

(54) Title: **51468**

Patent Application

of

HARTMUT SCHÜRG,

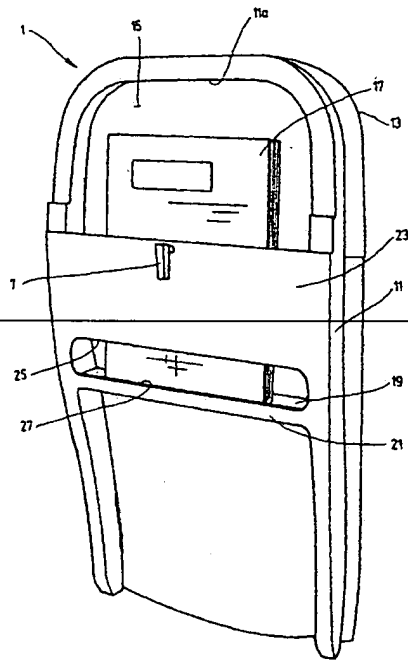
OLIVER FORGATSCH

and

CHRISTIAN PILGRAM

for

AIRCRAFT PASSENGER SEAT



(57) Abstract: The invention relates to an aircraft passenger seat with seat components, such as a seating piece and a backrest (1) comprising a support structure (11), supporting a backrest cushion (13), on the back face of which a food table, which may be folded against the same and extended into an in-use position and a pocket-like container (15), for housing useful objects, such as printed products (17) and travelling utensils, are arranged, whereby the container (15) is formed by a cavity, extending in the support structure (11) of the backrest (1), at least partly between the folded food table (3) and the backrest cushion (13).

(57) Zusammenfassung: Bei einem Fluggastsitz mit Sitzkomponenten, wie einem Sitzteil und einer Rückenlehne (1) mit einer Rückenlehnenpolsterung (13) tragenden Trägerstruktur (11), an deren Rückseite ein an diese anklappbarer und in eine Gebrauchsstellung wegklappbarer Esstisch sowie ein taschenartiges Behältnis (15) zur Aufnahme von Gebrauchsgegenständen, insbesondere von Druckerzeugnissen (17) und Reiseutensilien, angeordnet sind, ist das Behältnis (15) durch einen Hohlraum gebildet, der sich in der Trägerstruktur (11) der Rückenlehne (1) zumindest teilweise zwischen dem angeklappten Esstisch (3) und der Rückenlehnenpolsterung (13) erstreckt.

~~BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK,
DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK,
SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW.~~

(84) ~~Designated States (unless indicated otherwise, for
each available type of national protective right):
ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL,
SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM), European Patent (AT,~~

~~BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,
GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI,~~

~~SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).~~

Published:

~~With International Search Report.~~

*Reference is made for an explanation Field of the two-
letter codes and the other abbreviations to the Guidance
Notes on Codes and Abbreviations in the front section of
each regular PCT Gazette edition. Invention*

Aircraft Passenger Seat

The present invention relates to an aircraft passenger seat with seat components, such as a seat part and a backrest ~~with~~. The backrest has a support structure which bears the backrest cushioning, on the back of which there are a. A tray table which can be folded up onto the backrest and which can be folded away into the position of use, and a. A pocket-like receptacle for holding utensils, especially printed materials and travel accessories is also provided on the backrest.

Background of the Invention

Aircraft passenger seats ~~of this type are with seat part, backrests, tray tables and receptacles~~ are widely used in conventional passenger aircraft, specifically in airline or charter air transportation. As is recognized, in commercial air transportation for economic reasons a priority objective is to achieve the best possible use of interior cabin space ~~by there being~~, with as large a number of passenger seats as possible within a given useable space. ~~But at~~ At the same time ~~it must be ensured that~~, each passenger ~~has~~ should have available cabin space ~~which is sufficient with~~ respect to sitting and/or traveling comfort, as so-called "living space". Known passenger seats do not adequately satisfy the demands to be imposed on adequate "living space" when seating in the cabin space is tight, as is especially the case in air transportation in economy class.

Therefore the Summary of the Invention

An object of the present invention is to ~~make available~~provide an aircraft passenger seat which, even for tight seating in the cabin interior, makes available comparatively more room to the passenger.

In an aircraft passenger seat ~~of the initially mentioned type~~, this object is basically achieved ~~as claimed in the~~ according to the present invention in that ~~the~~ a receptacle is formed by a cavity ~~which extends~~extending in the support structure of the backrest at least partially between the folded-up tray table and the backrest cushioning.

In ~~that, as claimed in the~~ the present invention, ~~the~~ a pocket-like receptacle ~~has been moved into the~~ is located in the long unused internal cavity of the support structure of the backrest, ~~compared to.~~ In contrast, known aircraft passenger seats ~~in which the~~ have pocket-like receptacles ~~are mounted underneath the tray table in the knee area of the passenger next behind, there is a.~~ A larger amount of free space is then provided in the knee area. In the known aircraft passenger seats, especially when they are filled with travel literature, conventional safety instructions, and other travel accessories, the receptacles cause a major limitation of the free knee and leg space; ~~this.~~ This limitation is avoided in the present invention.

Advantageously, in the aircraft passenger seat ~~as claimed in the~~ of the present invention, ~~to form the~~ receptacle is located in the long unused cavity ~~can be used which extends~~extending from the area of the top edge of the support structure to the structure element of the support structure, ~~which.~~ The structure element forms the bottom of the receptacle and is located within the surface area of the folded-up tray table.

In this connection, the cavity for forming the main opening of the receptacle in the area bordering the top edge of the support structure can be open toward the rear. The main opening and accordingly the top edge of the support structure can also be offset down in height by an amount so that for this purpose in the support structure additional installation space is formed, for example for holding a display screen or the like.

As the rear wall of the pocket which is exposed when the tray table is folded away, the support structure of the backrest above the structure element which forms the bottom of the receptacle has a plate which passes between the two side edges of the support structure and onto which the tray table can be folded.

This plate can have a latch means for fixing the tray table in the folded-up position.

Between the lower edge of the plate ~~which forms~~forming the rear wall of the receptacle and the structure element ~~which forms~~forming the bottom of the receptacle, a slot-like bottom-side opening of the receptacle can be formed ~~which~~. This opening easily allows removal of small articles which are stored in the receptacle and easy cleaning of the receptacle.

~~There can be a~~A small projecting lip on the edge of the structure element ~~bordering~~can border the bottom-side opening of the receptacle ~~in order~~ to prevent printed material or smaller travel accessories located in the receptacle from slipping out. ~~Furthermore, the~~ The support structure can be additionally reinforced by ~~way of~~ a transversely ~~running~~extending bar underneath the receptacle.

~~The~~Other objects, advantages and salient features of the present invention will be ~~explained below~~become apparent from the following detailed description, which, taken in greater detailconjunction with ~~reference to the~~ annexed drawings, discloses preferred embodiments of the present invention.

Brief Description of the Drawings

Referring to the drawings which form a part of this disclosure:

FIG. 1 ~~shows~~is a schematically simplified ~~and~~, partially cutaway perspective rear view of a seat row section with three aircraft passenger seats according to the prior art, only the area from their backrests being visible;

FIG. 2 ~~shows~~is a schematically simplified, perspective rear view of only the area of the backrest of ~~one exemplary embodiment of the~~an aircraft passenger seat ~~as claimed in~~according to a first embodiment of the present invention, with the tray table being omitted;

FIG. 3 ~~shows~~is a perspective rear view of ~~simply~~ the backrest only of the ~~exemplary~~ embodiment ~~from~~of FIG. 2, enlarged compared to FIG. 2; and

FIG. 4 ~~shows~~is a schematically simplified, perspective rear view of ~~another exemplary~~an aircraft passenger seat according to a second embodiment of the present invention, with an integrated display screen.

Detailed Description of the Invention

FIG. 1 shows a section of a row of seats with three aircraft passenger seats according to the prior art, the area of their backrests being shown. Tray tables 3 ~~which~~ are arranged to be able to move in the conventional manner on articulated arms 5, and are shown in FIG. 1 in the non-use position, folded up onto the backrest 1. In this position, the tray tables 3 can be detachably fixed by locking latches 7 ~~which~~ are configured and made in the conventional manner.

Underneath the tray tables 3 are pocket-like receptacles 9 which, in the known aircraft passenger seats, are made in the form of pockets for printed material as net pockets or pockets with a closed wall. As FIG. 1 shows, these pocket-like receptacles 9, when they are filled with printed material, for example conventional safety instructions for flight operation, with travel accessories, other printed material, and the like, bulge to the rear and limit the leg area of the passenger sitting behind, especially in the knee area.

In FIG. 2 ~~reference number 11 designates~~, the support structure 11 of a backrest 1, according to one exemplary embodiment of the present invention, ~~the support structure 11 bearing~~ bears the backrest cushion 13. FIG. 2 shows the backrest 1 ~~with a view of~~ generally from its back, ~~for~~. For the sake of clarity, the tray table 3 ~~being~~ is omitted, which, when it is folded up onto the back of the support structure 11, can be locked by ~~means of~~ the swiveling latch 7 in the folded-up position, ~~the latch~~. Latch 7 extending ~~extends~~ in the conventional manner over the top edge of the folded-up tray table 3.

FIG. 3 shows more clearly and on a larger scale the details of the support structure 11, ~~it being apparent that in~~. In the support structure 11, the inner cavity ~~which extends between the front of the support structure 11 which bears~~ bearing on the backrest cushion 13 and its back in the region in which the tray table 3 can be folded onto the support structure 11 and can be fixed by ~~means of~~ the latch 7. This inner cavity is used as pocket-like receptacle 15 for holding articles, for example printed material 17. The bottom 19 of the receptacle 15 formed by the cavity is formed by a structure element 21 ~~which runs~~ extending transversely from side edge to side edge of the support structure 11. ~~In order to~~ To prevent articles from falling out of the receptacle 15 when the tray table 3 has been folded away, above the structure element 21 a plate 23 ~~which forms~~ the rear wall of the receptacle and extends from side edge to side edge of the support structure 11. This plate 23 bears a movable latch 7 for locking the tray table 3 shown in FIG. 1.

Between the structure element 21 ~~which forms~~ forming the bottom 19 of the receptacle and the plate 23 ~~there is a distance which defines~~ a slot-like opening 25. This bottom-side opening 25 of the receptacle 15 formed by the cavity makes it possible for it to be easily cleaned and smaller accessories to be comfortably removed. ~~In order to~~ To prevent printed material 17 or other articles from unintentionally slipping out, on the edge of the structure element 21 ~~which borders~~ bordering the bottom 19 to the outside ~~there is~~, a lip 27 ~~which projects~~ slightly in the form of ribs.

In the illustrated exemplary embodiments, the receptacle 15 is an integral component of the backrest support structure 11. Accordingly a type of hard box with stiffly made segment parts of the back rest is implemented for the receptacle 15. For this purpose, the backrest structure in spite of the added receptacle is stiffened as before ~~such that for~~. For example, in case of a crash, the crash forces ~~which occur~~ occurring cannot then lead to the seat collapsing, especially in the area of its backrest. The transversely ~~running~~ extending, continuous plate 23 between the two side or structure bars of the U-shaped support structure 11 is especially helpful in this connection.

~~In another exemplary~~ a second embodiment as shown in FIG. 4, the top edge 11a of the support structure 11 in the direction of the tray table 3, which is not detailed, is shifted down by a height ~~such that a~~. A display screen 31 can then be integrated into the support structure 11. Thus, on the back of the backrest, a uniform surface is attained which in the case of a crash or an impact can reliably accommodate and distribute the body forces which way be applied ~~in order in this way~~ to minimize the danger of injury for a rear seat occupant.

By eliminating the pocket located underneath the tray table 33 in the knee area of the aircraft passenger seat located directly behind, the aircraft passenger seat ~~as claimed in the~~ of the present invention makes available an enlarged "living space" for the user of the aircraft passenger seat located directly behind. By using the cavity ~~which is not~~ otherwise used within the support structure 11 of the backrest 1 as the receptacle or pocket for printed material, ~~thus~~ without having to tolerate the corresponding disadvantages, it becomes possible to implement tighter seating on the pertinent aircraft, and to exploit the corresponding economic advantage.

While various embodiments have been chosen to illustrate the invention, it will be understood by those skilled in the art that various changes and modifications can be made therein without departing from the scope of the invention as defined in the appended claims.

What is claimed is:

AIRCRAFT PASSENGER SEAT

Abstract of the Disclosure

An aircraft passenger seat with seat components, such as a seating piece and a backrest (1) includes a back support structure (11) supporting a backrest cushion (13). On the back face of the support structure a food table may be folded against the same and extended into an in-use position. A pocket-like container (15), for housing useful objects, such as printed products (17) and traveling utensils 15 is arranged on the support structure. The container (15) is formed by a cavity, extending in the support structure (11) of the backrest (1), at least partly between the folded food table (3) and the backrest cushion (13).